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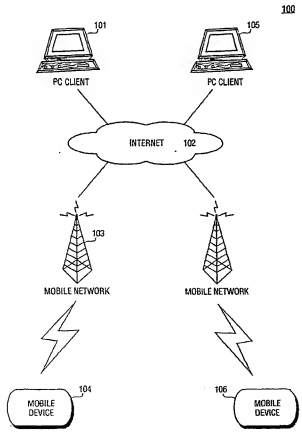
(54) Title: INSTANT MESSAGING SYSTEM AND METHOD



(57) Abstract: Method and apparatuses (100) for processing an instant message from a source wireless communication device (104, 106) to a destination device (101, 105) are described herein. In one aspect of the invention, an exemplary method includes receiving the instant message from the source wireless communication device, the instant message having a source wireless communication identifier, a destination instant messenger identifier, and data contents; extracting the source wireless communication identifier, the destination instant messenger identifier and the data contents from the instant message; retrieving a source instant messenger identifier corresponding to the source wireless communication identifier; binding the source instant messenger identifier with the source wireless communication identifier; and transmitting the data contents with the source instant messenger identifier to the destination device over a communication network, based on the destination instant messenger identifier. Other methods and apparatuses are also described.

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mobile client 410 is bound with a unique instant messenger ID. Thus, when a mobile client 410 communicates with others in the instant messenger environment, the only ID published to the public is the instant messenger ID. The advantage of this is that the mobile phone number is protected, which increase the privacy of the mobile client. Also, this arrangement increases the convenience of the communication, such that a "buddy" recognized or stored by a mobile client 410 does not need to remember or store the phone number. Members of an online community typically communicate with each other through either their nicknames or their instant messenger. A PC client 405 has no need to store the mobile phone number of the mobile client 410. In fact, in one embodiment, a PC client 405 does not need to know, as an option, whether the subscriber being communicated is a mobile client 410, based on the instant messenger ID. All the PC client knows is that it is communicate with someone in the instant messaging environment.

When a mobile client 410 sends a message to the PC client 405, the message typically includes the mobile phone number associated with the mobile client 410 and the instant messenger ID of the destination client (e.g., instant messenger ID of the PC client 405). The message is transmitted through a mobile network 409, such as a satellite network. The message is then processed by a mobile short message center 408. The mobile short message center 408 controls the management of short message system in mobile service. Optionally, a value added server (VAS) 407 may be involved to provide various value added functions of short message service. The message is then transferred through the mobile network interface gateway 406 to the Internet 404. Typically, the message is transferred through a TCP/IP protocol in the Internet. Other protocols may be utilized. Next, the mobile phone instant messenger inter-working server (MPIMIS) 402 receives the message via the Internet 404. The MPIMIS 402 processes the message including extracting the mobile phone number of the mobile client 410 from the message and binding it with a unique instant messenger ID. The MPIMIS 402 typically allocates an instant messenger ID from the instant messenger server 401 and queries the status of the destination PC client 405, based on the destination instant messenger ID.

The mobile network interface gateway 406 provides a connection between the mobile network and the Internet, such that the message can be transferred between two networks. The mobile network may comprise a global system for mobile (GSM)

Figure 17 shows an exemplary instant messenger communication between two mobile clients 1701 and 1705. Similarly, before two mobile clients can communicate with each other through the instant messenger network, both clients need to register and bind their respective mobile phone numbers with their instant messenger Ids. When the mobile client 1701 desires to send an instant message to the mobile client 1705, it sends a short message including the mobile phone number of client 1701 and the instant messenger ID of client 1705, to the mobile short message center 1702 through a mobile network. The mobile short message center 1702 processes the message and sends it to the mobile phone instant messenger inter-working server (MPIMIS) 1704, through the mobile network interface gateway 1703. The MPIMIS 1704 extracts the mobile phone number of client 1701 and the instant messenger ID of client 1705, from the message. The MPIMIS 1704 then retrieves the mobile phone number corresponding to the instant messenger ID of the client 1705 and the instant messenger ID corresponding to the mobile phone number of the client 1705, from a database, such as mobile phone instant messenger ID cross-reference relational database 506 of **Figure 5**. The MPIMIS 1704 next packages another outgoing message including the mobile phone number of client 1705 and the instant messenger ID of client 1701. The MPIMIS 1704 then sends the outgoing message back to the mobile short message center 1702 through the mobile network interface gateway 1703. The mobile short message center processes the outgoing message and sends the message to the mobile client 1705 through the appropriate mobile network, based on the mobile phone number of the mobile client 1705. As a result, the message and the instant messenger ID of client 1701 are displayed on the screen of the mobile client 1705. It is useful to note that the instant messenger communication is based on the instant messenger ID of both mobile clients. Only the instant messenger ID will be shown on the screen, instead of mobile phone number. As a result, the privacy of the mobile phone number has been protected.

Figure 18 shows a method 1800 of sending an instant message to a mobile client or a PC client, according to one exemplary embodiment of the present invention. The method 1800 starts with a mobile subscriber sending (block 1801) a short message to the mobile phone instant messenger inter-working server (MPIMIS). The message includes the mobile phone number of the source mobile client and the instant messenger ID of the targeted client. The MPIMIS extracts (block 1802) the mobile phone number of the

source client and the instant messenger ID of the targeted client from the message. The MPIMIS then retrieves (block 1803) the instant messenger ID of the source client, based on its mobile phone number. The MPIMIS checks (block 1804) whether the instant messenger ID and the mobile phone number of the source client are bound beforehand. If the mobile phone number and the instant messenger ID of the source client are bound, the MPIMIS examine the instant messenger ID of the targeted client to determine (block 1805) whether the targeted client is a mobile client. In one embodiment, the MPIMIS checks in a database, such as database mobile phone instant messenger ID cross-reference relational database 506 of **Figure 5**, whether the corresponding mobile phone exists. The existence of the corresponding mobile phone number indicates that the targeted client is a mobile client. If the targeted client is not a mobile client, the MPIMIS transmits (block 1806) the message to the instant messenger server. The IM server then transmits the message to the targeted client (e.g., PC client) based on the instant messenger ID of the targeted client.

If the targeted client is a mobile client (e.g., the mobile phone number corresponding to the instant messenger ID exists), the MPIMIS retrieves (block 1807) the mobile phone number corresponding to the instant messenger ID of the targeted client from the database. The MPIMIS then transmits (block 1808) the message and the mobile phone number of the targeted client to the mobile short message center through the mobile network interface gateway. The mobile short message center than transmits the message through the mobile network to the targeted mobile client, based on the mobile phone number of the targeted client.

Figure 19 shows an exemplary sequence of sending an instant message from a mobile client. The user first enters 1901 the short message section 1902. The user then writes 1903 a short message to another client 45678. Next the user enters its own mobile phone number of 170030 and sends out the message. The message may be targeted to another mobile client or the message may be targeted to a PC client.

When a PC receives the message, the message may be displayed through an instant messenger pop-up window. The window may be launched from a hidden application, such as a tray icon. Typically an instant messenger client is launched during the initialization of the operating system (e.g., when the user logs in to the network). In addition, the status of the buddy list may be displayed through another pop-up window

such as window 1402 of **Figure 14**. The Internet browser is also an important component of Internet technology in the current market. As a result, the present invention introduces a unique browser that embeds (or integrates) the instant messenger service, as well as other related services, such as chatting and message board services. With the browser of the present invention, a user can response to an instant message while the user is browsing a Web page within the same (or common) instance of the browser. A conventional browser is typically separate from an instant messenger (IM) application, executing on the same machine as a result, a user has to switch between the browser and the IM application to response to either action. Unlike a conventional browser, the present invention allow a user to browse a web and conduct IM service with others in the same browser. In addition, the browser of the invention allows multiple users visiting the same (or a common) Web page to communicate with each other through the instant messenger infrastructure. Furthermore, the browser of the invention is able to display multiple web pages in the same (or common) instance of the browser, without launch another instance of the browser, thus less memory resources and faster speed are employed. A conventional browser (e.g., Internet Explorer from Microsoft), has to launch multiple instances of the browser, in order to view the multiple pages. **Figure 20A** is a block diagram of an Internet browsing system with instant messenger (IM) system built-in, according to one exemplary embodiment of the present invention. The system 2000 includes a browser 2001 which is able to communicate with a IM application (e.g., an IM client 2002), a IM server group for supporting any IM related services to the IM client 2002. The system 2000 also includes a browser server group 2003 supporting the browser 2001. The browser server group 2003 includes a chatting and message server 2006, browser kernel server 2007 and an analysis/statistical management server 2008. The system 2000 is able to support multiple users 2005 accessing the Internet.

Referring to **Figure 20A**, the browser kernel server 2007 receives and responds to the registration of a user 2005 and returns the user online information to the browser 2001. The browser kernel server 2007 also keeps track the page browsing activities on the browser and to allow a user to check on the "who's with me" function, (e.g., providing information of other users who are visiting the same website or page simultaneously), to provide two-way instant network communications between friends

via instant communications software. The browser kernel server also synchronously sends user online information to the chatting/voice mail server 2006 and gathers user online information before sending it to the statistical management server 2008.

The chatting and messaging server 2006 is responsible to manage real time chatting of users and to respond to users' requests to send out or read recorded messages. Statistics management server 2008 is responsible for the background management. Browser kernel server transmits the records of all access users to the statistics management server that will perform analysis on the records. IM server 2004 is responsible for providing instant messenger service to the user 2005.

In addition, the system may comprise software which includes the browser 2001, which is responsible for sending the identity requests to the IM server, transmitting the results of such requests to the browser kernel server 2007, keeping track with the access to pages in the user browser and transmitting the information to the browser server promptly. Another software component is the IM client 2002. The IM client 2002 is responsible for responding to the requests for user identity at user interface and transmitting to the IM server. Results of the inquiry may be sent to the browser 2001.

As described above, users have to log in to the instant messenger network before they can communicate with each other through the browser. A typical user will login to the IM server during the initialization of the PC (e.g., booting and login processes). When the user log in from the desktop, the corresponding instant messenger client 2002 is launched. The IM client 2002 transmits all necessary user information including instant messenger ID and the associated password to the IM server 2004. The IM server 2004 authenticates the login message and return verification to the IM client 2002. In another embodiment, the IM login processes may be launched manually by the user after the initialization phase of the PC. The IM client may be minimized as a tray icon on the desktop of an operating system. In another embodiment, the IM client may not contain user interface. The IM client may be accessed from the browser through a well-known inter-application communication mechanism. Other configuration may exist.

When the browser 2001 is launched, the browser communicates with the IM client 2002 to receive any user specific information regarding to the IM services. The browser then logs in to the browser kernel server 2007, using the user information passed along from the IM client 2002. In another embodiment, the browser kernel server 2007

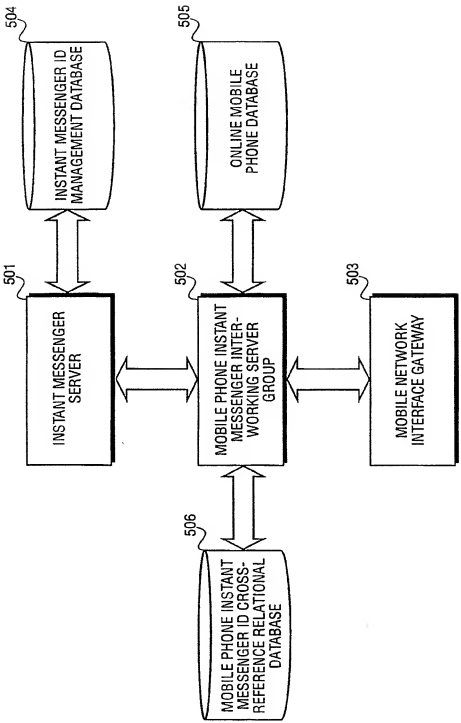
504
INSTANT MESSENGER ID MANAGEMENT DATABASE
505
ONLINE MOBILE PHONE DATABASE
501
INSTANT MESSENGER SERVER
502
MOBILE PHONE INSTANT MESSENGER INTER-WORKING SERVER GROUP
503
MOBILE NETWORK INTERFACE GATEWAY
506
MOBILE PHONE INSTANT MESSENGER ID CROSS-REFERENCE RELATIONAL DATABASE

FIG. 5